

# Chemist Good Fairy To His Neighbors

Improvement of Shoe Leather His Serious Work, but He Finds Time to Solve Friends' Problems by Science

HE is a little, mild New England man of medium height, slight frame, a broad, high forehead and wonderfully bright eyes. He is 65 years old, if you look at it from the mere point of years, but he is 65 years young if you consider him from the viewpoint of tireless activity. For more than thirty-five years he has specialized in developing chemical formulae which will improve leather, and more than a quarter of a century ago he opened up his own unique laboratory as a leather chemist in Brockton, Mass., to develop formulae for shoe manufacturers.

To him a piece of leather is the most wonderful thing in the world. He says that the entire workings of the universe, its every chemical and natural phase, can be seen in a single fibre of leather. His father was a shoe manufacturer, and his grandfather before him, so that he comes naturally by his interest in shoe leather.

## His Strawberry on Stilts.

But outside of his absorbing passion, which keeps him busy during the day and far into the night, the little New England chemist has found time to do many wonderful things for his neighbors.

Once a neighbor complained that her strawberries became coated with sand because of the short stems. "They grow too close to the earth," she said. "I don't see why somebody doesn't invent a strawberry that will grow on stilts."

"I'll see what can be done," said the little old young man.

Several years later he called on his neighbor with a growing strawberry plant, bearing berries on very high stems.

"See what I have brought you," said he. "A strawberry plant growing on stilts. It's so high from the ground that the berries will not be damaged by the sand. In fact I don't believe there are any other berries just like them."

That was Howard's "wonder" berry developed by him by a process of selective breeding, a berry of great size, exquisite flavor and growing upon long stems, like a wild strawberry, but longer. There the secret is out. The little man who does everything for nothing is Fred A. Howard, shoe chemist, a pioneer in that line. For while there have been many who have devoted their lives to tanning there have been comparatively few who have made life a life study of leather after it is tanned.

It has really been more than a life study. Howard has poured his whole existence into the rectifying and improving of leathers. He has had many ups and downs, for at first manufacturers could not believe in the marvels that he has accomplished. But at last he has come into his own, and in the interim of a busy life he has found time to use his knowledge for the benefit of his neighbors.

One Sunday afternoon Mr. Howard and his wife visited a farm in a neighbor's flivver. Howard couldn't even afford a flivver at that time. It was a stock farm, and the owner had some registered Jersey cattle and highly bred horses.

"I wish I had something to keep the flies from bothering my cows," said he, "and as for the horses, they simply drive them frantic."

"It would be good if something could be found," assented Mr. Howard.

A few weeks later he came bearing a big bottle wrapped in a newspaper. "Try this on your horse," said Mr. Howard. "It will keep away the flies, will make the horse's hair silky and glossier without harming the horse's skin. Use it on your cows, too." And the solution made by the chemist wrought marvels.

Here's another case of Howard's helpfulness. Out at the Brockton fair, which is one of the best county fairs in Massachusetts, and if you will believe the Brocktons one of the most wonderful in the world, the stables were too close to the grand stand and the odor on hot days was unpleasant. "Say, Mr. Howard," said an official, "can't you tell us how to get rid of that odor?"

"I'll try," said Howard, and later he came back with something in a box. "Put a half a cupful of this in a watering pot and sprinkle around the stables every morning and you will have no odor," he said.

True enough, the "something" worked marvels. It is safe, as Mr. Howard explained, if you take it weak enough, to use as a gargle. You can even put a little of it in a dish on the stove when you are cooking cabbage and it will absorb all the odors.

## New Food for Typhoid Victims.

Some years ago in Boston the late Dr. J. Heber Smith, professor of materia medica of Boston University, said to Howard: "I wish I could get a proper diet for a convalescing typhoid patient. My patient needs the nutritive elements contained in milk, but his digestive organs are too weakened to deal with either whole milk or any form of modified milk that I know of." It happened that Howard was fairly familiar with Dr. Smith's needs. The little chemist in his researches was a frequent visitor at the university, and kept abreast of its progress.

"I'll see what I can do," Howard said. As a result Mr. Howard developed a process whereby milk is treated, the butter fat, casein and many other constituents being taken out, while all food values that can be assimilated by typhoid fever and other patients of low vitality or poor digestive ability are left in. Chemists all over the world have tried to get this result. Mr. Howard has succeeded. In the opinion of Dr. Smith, the new fluid is a very wonderful diet. When he gave it to a patient, Dr. Smith said, "It vitalized him almost immediately, and its food values were almost instantaneously assimilated. They passed into the blood as rapidly as sugar or alcohol, and are obviously of greater benefit to the system."

After Dr. Smith's death Mr. Howard continued to make the fluid for Dr. Smith's convalescing patients. It is transparent, with no floating particles, and the color is slightly like champagne. The fluid has been tested by one of the most eminent physicians in Massachusetts, and is now being made up in small quantities to experiment with by a group of New York physicians. It is Mr. Howard's intention to place this

formula, without charge, at the disposal of the medical profession.

Mr. Howard's great helpmate in life is his wife, a little frail New England woman, a lifelong invalid. They have no children. But his wife, although unable to be physically active, has, he says, been the one great aid to him in his research work. She has kept indexed and filed the results of several hundred thousand chemical experiments that have been made by scientists within the last forty years. Also, she has indexed and cross indexed a record of Mr. Howard's own experiments and results attained in more than ten thousand cases.

"Such records are of wonderful help to a chemist," said Mr. Howard recently, "for they enable him to begin where others have left off. My own records are also of great value to me, even when they are records of failures, for they tell me what not to do and when I am proceeding in the wrong direction."

Mr. Howard has not made money. He cares little for it. He pursues his research and experiments tirelessly. When he perfects a formula he is keenly anxious to have it used, but each achievement has found him engaged in a dozen other scientific advances, so he has not stopped to commercialize his discovery.

He has a hundred definite aims at the present time, and at sixty-five years of age sincerely expects to accomplish more in the way of reducing waste and improving everyday essentials of life within the next ten years than he has accomplished in the last forty years.

Some of his greatest successes have been of permanent value to shoe manufacturers. One of the big shoe factories that used some of his formulae for solutions to rectify stocks of leather that they had on hand said that Mr. Howard's discovery saved them \$500 a day.

A few years ago he sold some of his formulae at a good price, and with the money built a factory, only to have it burn down later.

Aside from his beloved researches into leather Mr. Howard has found time to take up other problems that have been presented to him by manufacturers.

More than a year ago one of the largest work clothes manufacturers in the country came to him to learn if he could develop a fireproofing solution for textiles which would not rot the cloth and which would not wash out. Most of the fireproofing solutions injure the fabric. Mr. Howard has produced a fireproofing solution whereby the cloth resists ignition, and after a period of more than one year has not injured the fabric. Now he is working to make it so that it will resist many washings, which his contract calls for.

## Keeps the Sails White.

In Boston harbor there are a good many sailboats. One of Mr. Howard's old time cronies invited him to go for a sail. As they flopped around in the midst of a summer calm his friend remarked: "If I could find a man that could keep my sails from mildewing I'd pay any price almost." Some time after Howard came down to the boat landing with an atomizer and a bottle of chemicals. "Spray this just once on your sails, Joe," he said, "and you'll have no more trouble with mildew or discoloration." The thing worked like a charm.

"Another of Mr. Howard's inventions is an anti-moth solution that can be applied to a garment or cloth with an atomizer, and it renders it permanently immune from moths, but does not discolor or injure the fabric."

But Mr. Howard's great devotion is to leather research. And after forty years of tireless investigation he says that he has only begun.

His other developments, like the strawberry, have been merely side lines, and he has been glad to give others the advantage of them. He is planning to distribute some of his strawberry to leading granges throughout the country and to ladies' aid societies, as he has found the berry which he developed by selective breeding to be extremely hardy and an early and prolific bearer, as well as of delightful flavor and huge size, and he wants the public to benefit by it.

Howard began the study of chemistry as a very young man, and after several years of laboratory work engaged for two and one-half years in advanced research abroad. Then he opened a laboratory at Brockton, Mass.

Howard's uncle, who is a shoe manufacturer, directed his attention to the fact that hemlock leather, then most used for shoes, although the best wearing leather, was too hard and stiff for fine shoes, and suggested that he try to find a way to make it mellow and flexible and still retain its wearing qualities. They visited the factory together and Howard's uncle explained the great need of some way to make the hard and brittle stock flexible. Howard had his microscopes and his knowledge of chemistry and tackled this, his first big industrial job.

He took sample sections from the different grades of leather and mounted same on slides for study. He says: "I found with hemlock tanned leather that more or less of the crystal of the tannin of hemlock extract was not only deposited on the fibre as filling of the leather, but the fibres were more or less cemented together by these crystalline masses, and the more they were cemented together the stiffer was the leather. The question to be solved seemed to be to soften the crystal and change it from a crystal to a form that would cover the fibre and never recrystallize." A year's research produced a formula that accomplished the desired result.

Since then Mr. Howard has made hundreds of experiments. He has worked on an average of sixteen hours a day for the past forty years.

One of Mr. Howard's most recent formulae produces a wonderful solution for improving leather for shoes. The chemical is said to permanently affect the fibres of the leather, rendering it wonderfully flexible and, by test, increasing its durability over 100 per cent. It is said to render the leather impervious to water, although admitting air.

Another is a new solution for leather belts which he is trying out with a big glue company. The usual life of a certain type of belt employed is two months. But one of



PROF. HOWARD  
HOLDING A PIECE OF LEATHER  
STRENGTHENED AND PRESERVED  
BY HIS CHEMICAL PROCESS

the belts processed by Mr. Howard's formula has been in use for three months, and is in such excellent condition that it is believed at least six months use can be obtained from it.

Mr. Howard is a gentle little man, shy of interviewers, and fearful lest he be misquoted, or that inexact impressions of his work be given out. He is rich in human interest qualities. He is keenly loyal to his friends, and his friends comprise all humanity.

While he admires those chemists who evolve theories and proceed to prove them, but who do not work toward definite aims or economic or social advantage, he personally has always had a definite goal in sight, a

mark at which to aim, and all his experiments have led him toward simplification of products, the improvement of quality and the reduction of costs of those things having to do with the common phases of life.

Nothing could be more valuable in Mr. Howard's eyes than a better fruit (that could be raised with less effort and in greater quantities) or a simple and effective method of cutting down the family shoe bill, or reducing the cost of any other of the every day commodities of life. Mr. Howard vibrates to the idea of eliminating waste and improving the living conditions of the mass of the people. He properly can be called "the people's chemist."

# Battle of the Ape and the Crab Still Thrills Japanese Children

SO much of old Japan, manners, customs, beliefs, has disappeared since 1868, when the Mikado came out of his mystery to prove to the world that he had a right to rule, that it is sometimes asked whether the stories and verses that used to be told to the children of the Sunrise Land are still told or new fairy lore and nonsense rhymes have been imported from the Occident to take their place. Such a question shows a sketchy idea of childish nature. The fairy tales indigenous to Japan have proved quite as immortal as Cinderella and tales of that ilk, and Mother Goose, that rule the nurseries of the West.

Yes, the stories that Japanese mothers used to hush their children to sleep with when the empire was a hidden kingdom are still the ones that Japanese mothers tell to-day. "The Tongue-Cut Sparrow," "The Elves and Their Envious Neighbor," "The Old Man and His Wife and Their Dog" are among the first tales told a Japanese child.

What has happened is that the people are a trifle ashamed to admit their interest in baby stories and with their assumption of Western manners ceased to publish books of fairy stories.

The little separate pamphlets, with illustrations, in which these stories used to appear, are no longer printed. It is rare when a student of etymology and folk lore happens on one of these old books, the stereotypical blocks of which have become so worn that the print is hardly legible. From some of these, which have fortunately turned up, the following stories have been translated literally by A. B. Mitford. They were published in 1886 in Macmillan's Colonial Library.

## Battle of the Ape and the Crab.

If a man thinks only of his own profit and tries to benefit himself at the expense of others he will incur the hatred of Heaven. Men should lay up in their hearts the story of "The Ape and the Crab," and teach it as a profitable lesson to their children.

Once upon a time there was a crab who lived in a marsh in a certain part of the country. It fell out one day that the crab, having picked up a rice cake, an ape, who had got a nasty, hard persimmon seed, begged the crab to make an exchange with him. The crab, who was a simple minded creature, agreed, and each went his way, the ape chuckling to himself at the good bargain he had made.

When the crab got home he planted the persimmon seed in his garden, where it sprouted and by degrees grew to be a big tree. The crab watched the growth of his tree with great delight, but when the fruit ripened and he was going to pluck it the ape came in and offered to gather it for him. The crab consenting, the ape climbed up into the tree and began eating all the ripe fruit himself, while he only threw down some persimmons to the crab, inviting him to eat heartily.

The crab, however, was not pleased at this arrangement and thought it was time for him to play a trick on the ape; so he called out to him to come down head foremost. The ape did as he was bid, and as he crawled down, head foremost, the ripe fruit all came tumbling out of his pockets, and the crab, having picked up the persimmons, ran away and hid himself in a hole. The ape, seeing this, lay in ambush, and as soon as the crab crept out of his hiding place gave him a sound drubbing and went home.

Just at this time a friendly egg and a bee, who were the apprentices of a certain rice mortar, happened to pass that way, and seeing the crab's piteous condition tied up his wounds, escorted him home and began to lay plans to be revenged upon the cruel ape.

Having agreed upon a scheme, they all went to the ape's house, in his absence; and each one having undertaken a certain part, they waited in secret for their enemy to come home. When the ape returned, having a fancy to drink a cup of tea, he began lighting the fire in the hearth, when all of a sudden the egg, who had hidden in the ashes, burst with the heat and bespattered the frightened ape's face, so that he fled, howling with pain. He tried to go to the back of the house, when the bee darted out of a cupboard, and a piece of seaweed, who had joined the party, coming up at the same time, the ape was surrounded by his enemies. In despair he seized the clothes rack and fought for a while; but he was no match for so many and was forced to run away, with the others in hot pursuit. Just as he was making his escape by a back door the piece of seaweed tripped him up and the mortar, closing with him from behind, made an end of him.

So the crab, having punished his enemy, went home in triumph and lived ever after on terms of brotherly love with the seaweed and the mortar. Was there ever such a piece of fun?

## The Accomplished Tea Kettle.

A long time ago at a temple called Morinji, in the province of Joshi, there was an old tea kettle. One day when the priest of the temple was about to hang it over the hearth to boil the water for his tea the kettle all of a sudden put forth the head and tail of a badger. What a wonderful kettle to come out all over fur! The priest called in the novices to see the sight and while they were stupidly staring the kettle, jumping up in the air, began flying about the room. The priest and his pupils tried to catch it, but no thief or cat was ever half so sharp as this wonderful badger kettle.

At last they managed to knock it down and secure it, when they forced it into a box, intending to throw it away and so be no more tormented by the goblin. But the tinker employed by the priest calling in next day, the latter thought he might as well sell the kettle and get some trifle for it. He brought it out, and as the kettle had resumed its former shape and got rid of its head and tail the tinker paid 20 coppers for it and trudged off home with his pack and new purchase.

That night as he lay asleep he heard a strange noise near his pillow, so he peeped out, and saw the kettle covered with fur and walking about on four legs. When the tinker started up in fright the kettle resumed its normal shape. Then a friend of the tinker advised him to take the accomplished kettle about as a show and make it dance and walk on the tight rope.

So the tinker made arrangements with a showman and set up an exhibition. The noise of the kettle's performances soon spread abroad, until even the princes of the land sent to order the tinker to come to them, and he grew rich beyond all his expectations. No sooner had the kettle shown its tricks in one place than it was time for the tinker to keep some other engagement. At last the tinker grew so rich that he took the kettle back to the temple, where it was laid up as a precious treasure and worshipped as a saint.

# Girl Not Thirteen Ready for College

Helen Koch, Latest Wonder Child in Mathematics, Credits Hard Work and Her Teacher for Amazing Record

IN the traditional theory of what constitutes education mathematics dominates every other study and pupils in the public schools of this and other American cities are graded according to what they know about "arithmetics"; these pupils may be wonders at those other primeval things "ritin'" and "readin'," but depend upon it they will not get far unless they can do sums in mental and other problems having to do with figures.

Particularly in mathematics made the test of the wonder children who crop out of the common soil now and then to make the rest of us feel that we have been negligently endowed by nature. It was the proficiency of the eleven-year-old boy who distinguished himself at Tufts College a decade ago by knowing more than the doctors about physics and philosophy, and it was his uncanny power to solve problems in the higher mathematics that in 1906 spread the name of William James Sidis (aged 8) over the civilized world. Other examples might be cited if the object were not to hasten on to the latest, and their minds all tended toward mathematics.

## The Latest Child Marvel.

The latest child to be remarked for a similar if not so pronounced bent is a real New Yorker, having been born in The Bronx, educated there as far as she has gone, and this fall is to become a student at Hunter College, that famous school of New York for women. She is Helen Koch, only a little over twelve years old, and her teachers pronounce her to be a marvel in all her studies, but truly one in mathematics, while her parents modestly protest that this is too much praise for their child who has gone so far in study simply because she has strongly developed "a gift of application." Helen herself, not remarkable in appearance but a healthy, "stocky" little girl with a pigtail, doesn't say anything, only smiles.

When told that she would redeem the reputation of the metropolis for producing wonder children she did her broadest smiling, but in a perplexed way, until it was explained that the famous Sidis was really

taking his valuable time in order to find out if we have urged the child forward. We don't like it one bit!"

## Helen's Record in School.

But even if one tries one cannot utterly hide the light of even a little candle under a bushel; its rays, faintly or otherwise, will shine through the interstices of the basket work, and so it is with this recent example of intellectual light. Mr. and Mrs. Louis Koch—Ohio born, both of them—cannot now stem, as they seem earnestly to wish to do, the flood of inquiry. The very statement from Hunter College to the effect that for the first time since it opened in 1884 it will admit as a student Helen Koch, not yet thirteen years old, was sufficient to interest the public.

Little Helen received her diploma of graduation at the close of the June term of Public School No. 39, Longwood avenue, in the Bronx Borough. The principal, Miss Anna V. McCarthy, is authority for the statement of Helen's fine record; the child received the highest marks in the entrance examination there and the highest marks throughout her course and on graduation. Her particular teacher in School No. 39 was Miss Helen Donlon, who indorsed these figures, adding the intelligence that the child never received a mark less than 95 per cent. In any study and had no difficulty at all in obtaining perfect scores or a mark of 100, in mathematics.

In her entrance examination for Hunter College the child lived up to her record in the public school, so it would have been difficult to decline to admit her on account of her age.

## Skips Three Classes.

At the age of five Helen went to Public School No. 52, in The Bronx, and there began her career as a wonder. News of her powers was, however, spread no further than among her fellow pupils and the teachers of this primary department. After attending school there for four years she was transferred to Public School No. 39. Principal McCarthy found her so advanced in her studies that she was permitted to skip three classes in the four upper grades. This accomplishment at once aroused the admiration of her teachers and fellows, as no other pupil in this school had ever progressed at so rapid a rate.

The powers of the child mind to grasp arithmetical problems are usually latent at this stage of their education, and particularly in this true of little girls, but Helen was different. And as soon as she came under instruction of Miss Helen Donlon, one of the most efficient teachers of mathematics in the public schools, these remarkable powers were recognized and every care put forth to develop them. The pupil and teacher became friends, and Miss Donlon is very proud of her. Little Helen appreciates her teacher for the exceptional advantages she has received through her in the prosecution of her favorite study and says that much of her success is due to Miss Donlon's sympathetic encouragement. Not that Helen put it in just these words; she is not such a little pedant, although she talks rather "big" for twelve.

## Ambitious to Become a Teacher.

The course at Hunter College is five years, but the new "wonder" expects to repeat what she did in public school, that is, skip classes and be graduated in far less than the regular time. Her ambition is to become a teacher as soon as possible.

"I am proud of having taken my diploma at School No. 39," said the child. "First, because it is a very thorough school, and second, because I liked all my teachers there. I was particularly fond of Miss Donlon, who taught arithmetic, and that wasn't surprising because she and I used to have such good times doing hard problems. She would set them for me and I would set them for her. We got to be real good friends."

"My two sisters and my brother, Fred, were graduated from Public School No. 39, so I have always known about it. They were very bright at mathematics. I have liked figures ever since I went to school for the first time; they come natural to me. I guess they do to all in our family."

Mrs. Koch, who with every word added strength to the first impression she gives out, that of having been a teacher before her marriage, said that neither she nor the child's father had any idea of urging her by hard or excessive study to shorten the time she would take to cover the Hunter College course.

"Helen," she said, "is a normal, healthy girl, and we hope to keep her so. Besides there is no need of hurry. Of course we are proud of her, but chiefly because of her diligence. A question of how remarkable she is does not need an answer from her parents. We are proud and pleased that she applies herself and to some purpose."

The home of the bright little lady mathematician is at 755 Dawson street, a neighborhood of pleasing but small private houses, although the Koch family occupy the first floor of a modest apartment building. The neighbors are prouder of the remarkable child than her own folk will permit themselves to be. Several of the women in the block pronounced the child's ability in mathematics to be "uncanny." It had been shown at an early age, these admirers said, but when asked for instances they one and all couldn't "just remember." Two girls, living in the neighborhood, who were members of the class that was graduated with Helen Koch on June 28, testified that there wasn't a problem that came up in class at school Helen couldn't answer. In fact she was ready with the answer before the teacher had finished giving the most difficult problem out. "It just seemed to pop out of her head."

The fact that the new "wonder," as Helen is termed, although her mother deprecates the title, is a girl, belonging to the sex that with rare exceptions stumbles fearfully and without clearly understanding why they are it are along the path of "arithmetics" will cause her progress in Hunter College and later to be watched with care. That a girl should choose mathematics instead of English or a modern language to major in is unusual, and may constitute the only remarkable feature in her case. But such a choice is not ab-

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HELEN KOCH